AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-31. (canceled)

32. (new) A laser diode pumped solid state laser apparatus, comprising:

a laser diode light source providing a pumping light;

a solid-state laser medium that receives the pumping light and provides a laser oscillation light from ends thereof;

two resonator reflective surfaces at respective said ends of said laser medium and that reflect the laser oscillation light provided from the respective ends of said laser medium back to said ends, said laser medium being between and aligned with said two reflective surfaces so as to define an optical axis for the laser oscillation light through said ends and said reflective surfaces; and

a fluorescence detector that includes a fluorescence receiving surface that receives fluorescence emitted by said laser medium directly from one of said ends of said laser medium, said fluorescence receiving surface being between said laser medium and one of said reflective surfaces and directly adjacent to said optical axis without blocking said optical axis.

33. (new) The apparatus of claim 32, wherein said fluorescence detector comprises a photodetector and said fluorescence receiving surface, and wherein said fluorescence receiving surface is a mirror that reflects the fluorescence received directly from said one of said ends to said photodetector.

34. (new) The apparatus of claim 32, wherein said fluorescence detector comprises a photodetector and a waveguide comprising said fluorescence receiving surface, and wherein said waveguide directs the fluorescence received directly from said one of said ends to said photodetector.

35. (new) The apparatus of claim 32, wherein said fluorescence detector comprises a photodetector and a transparent medium that completely surrounds said optical axis and that comprises said fluorescence receiving surface.

36. (new) The apparatus of claim 35, wherein said transparent medium has a radially external surface with a reflective film thereon that directs the fluorescence to said photodetector.

37. (new) The apparatus of claim 35, wherein said transparent medium is round.

38. (new) The apparatus of claim 35, wherein said transparent medium is trapezoidal.

39. (new) The apparatus of claim 35, wherein said transparent medium is generally elliptical.

40. (new) A method of diagnosing a status of a laser diode pumped solid state laser apparatus that includes a laser diode light source providing a pumping light, a solid-state laser medium that receives the pumping light and provides a laser oscillation light from ends thereof, and two resonator reflective surfaces at respective that ends of the laser medium and that reflect the laser oscillation light provided from the respective ends of the laser medium back to the ends, the laser medium being between and aligned with the two reflective surfaces so as to define an optical axis for the laser oscillation light through the ends and the reflective surfaces, the method comprising the steps of:

detecting fluorescence emitted by the laser medium directly from one of the ends of the laser medium, the fluorescence being detected with a fluorescence detector that

includes a fluorescence receiving surface that receives the fluorescence, where th flu rescence receiving surface is between the laser medium and one of the reflective surfaces and directly adjacent to the optical axis without blocking the optical axis; and

comparing the detected fluorescence with a reference value to diagnose the status of the laser apparatus.

41. (new) The method of claim 40, wherein the fluorescence detector includes a photodetector and a mirror that is the fluorescence receiving surface, and wherein the detecting step comprises the step of reflecting from the mirror to the photodetector the fluorescence received directly from the one of the ends.

42. (new) The method of claim 40, wherein the fluorescence detector includes a photodetector and a waveguide that includes the fluorescence receiving surface, and wherein the detecting step comprises the step of directing the fluorescence received directly from the one of the ends through the waveguide to the photodetector.

43. (new) The method of claim 40, wherein the fluorescence detector includes a photodetector and a transparent

medium that completely surrounds the optical axis and that includes the fluorescence receiving surface, and where the detecting step comprises the steps of receiving the fluorescence completely around the optical axis and directing the received fluorescence to the photodetector.